

# Multi-Sensor Aerosol Products Sampling System (MAPSS)

Melanie Follette-Cook, Pawan Gupta, and Bryan Duncan

NASA Remote Sensing for Air Quality Applications, March 20-23, 2018, Jakarta, Indonesia

# Multi-Sensor Aerosol Products Sampling System (MAPSS)

<http://giovanni.gsfc.nasa.gov/aerostat/>

- MAPSS is a portal for evaluating and comparing various aerosol datasets with AERONET

## MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

Data Selection

Results

NEW Try out the MAPSS Statistical Explorer

Plot Data

Reset

Clear

Send Us Feedback!

Help

Select Station

Click 'Browse' button or type in comma separated names of sta

Browse

Select Plot

Satellite Colocated with AERONET

☒ Time Series

☐ Scatter Plot

Select Measurements

Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic ☐ Advanced

Product

AERONET aerosols L2, ver. 2  
AERONET deconvolution L2, ver. 41  
AERONET inversions L1.5, ver. 2  
AERONET inversions L2, ver. 2  
CALIPSO column and layer aerosols L2, ver. 3

Parameter

Layer

Measurement



# Step 1: Select a Station

**EARTHDATA** Data Discovery ▾ DAACs ▾ Community ▾ Science Disciplines ▾

## MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

**Data Selection** Results **NEW** [Try out the MAPSS Statistical Explorer](#)

**Plot Data** Reset Clear Send Us Feedback! Help

**Select Station**

Click 'Browse' button or type in comma separated names of sta

**Station Picker**

To make multiple selections, press 'Ctrl' (on Windows) or 'Command' (on Mac) key while making selections.

**Select Filter Criteria**

By Country ([Reset](#)) By Network ([Reset](#))

Afghanistan  
Algeria  
Antarctica  
Argentina

AERONET  
BSRN  
CBoM  
EOS\_Validation  
GC\_Net

**Select Matching Stations ([Reset](#))**

AOE\_Baotou  
ARM\_Barnstable\_MA  
ARM\_Darwin  
ARM\_Gan\_Island  
ARM\_Highlands\_MA  
ARM\_HyytiäläFinland  
ARM\_Manacapuru  
ARM\_Nainital  
ARM\_Olktok\_AK  
ATHENS-NOA  
Abisko  
Abracos\_Hill  
Abu\_Al\_Bukhoosh  
Abu\_Dhabi  
Adalside

**Measurement**

[Show Data Temporal Coverage](#)

Enter a station name or click browse to make a selection using a map



# Step 2: Select Plot Type and AERONET Measurement

**EARTHDATA** Data Discovery ▾ DAACs ▾ Community ▾ Science Disciplines ▾

## MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format

**Data Selection** Results **NEW** [Try out the MAPSS Statistical Explorer](#)

**Plot Data** Reset Clear Send Us Feedback! Help

**Select Station**

Bandung Browse

**Select Plot**

Satellite Colocated with AERONET

☐ Time Series ☒ Scatter Plot

**Select Measurements**

Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic ☐ Advanced

Product	Parameter	Layer	Measurement
AERONET aerosols L2, ver. 2	AOD - interpolated	AOD at 532nm (interpolated)	Central value
AERONET deconvolution L2, ver. 41	Angstrom exponent	AOD at 550nm (interpolated)	Linear correlation
AERONET inversions L1.5, ver. 2	Water vapor	AOD at 555nm (interpolated)	Mean
AERONET inversions L2, ver. 2		AOD at 558nm (interpolated)	Median
CALIPSO column and layer aerosols L2, ver. 3		AOD at 660nm (interpolated)	Slope of fitted plane or line

Add

**Select: AERONET aerosols, Ver. 2**

**Select: AOD - interpolated**

**Select: AOD at 550 nm**

**Select: Mean**

**Last, click add**



# Selected Measurements Will Appear

EARTHDATA

Data Discovery ▾

DAACs ▾

Community ▾

Science Disciplines ▾

MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

Data Selection

Results

NEW Try out the MAPSS Statistical Explorer

Plot Data

Reset

Clear

Send Us Feedback!

Help

Select Station

Bandung

Browse

Select Plot

Satellite Colocated with AERONET

☐ Time Series

☒ Scatter Plot

Select Measurements

Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic ☐ Advanced

Product

AERONET aerosols L2, ver. 2

AERONET deconvolution L2, ver. 41

AERONET inversions L1.5, ver. 2

AERONET inversions L2, ver. 2

CALIPSO column and layer aerosols L2, ver. 3

More about [AERONET aerosols L2, ver. 2](#) ...

Parameter

AOD - interpolated

Angstrom exponent

Water vapor

No additional information

Layer

AOD at 532nm (interpolated)

AOD at 550nm (interpolated)

AOD at 555nm (interpolated)

AOD at 558nm (interpolated)

AOD at 660nm (interpolated)

No additional information

Measurement

Slope of fitted plane or line

Standard deviation

Valid subsetting points

**Geometry**

Row of central point

More about [Mean](#) ...

Add

Select Measurements

X-Axis


AERONET aerosols L2, ver. 2 : AOD - interpolated : AOD at 550nm (interpolated) : Mean

No. of pixels with value ☒ All ☐ >= 2

Delete



# Step 3: Select Satellite Measurement

 **EARTHDATA** Data Discovery ▾ DAACs ▾ Community ▾ Science Disciplines ▾

## MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

[Data Selection](#) [Results](#) **NEW** [Try out the MAPSS Statistical Explorer](#)

**Plot Data** [Reset](#) [Clear](#) [Send Us Feedback!](#) [Help](#)

**Select Station**

Bandung [Browse](#)

**Select Plot**

Satellite Colocated with AERONET

☐ [Time Series](#)

☒ [Scatter Plot](#)

**Select Measurements**

Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic ☐ Advanced

Product	Parameter	Layer	Measurement
MODIS 3km aerosols L2 (Aqua), ver. 006	AOD 550nm - combined	AOD 550nm - combined	Azimuth of fitted plane
MODIS 3km aerosols L2 (Terra), ver. 006	AOD at 3 bands (Deep Blue)		Central value
<b>MODIS aerosols L2 (Aqua), ver. 006</b>	AOD at 550 nm with all QA - land and oce...		<b>Mean</b>
MODIS aerosols L2 (Aqua), ver. 051	AOD at 550 nm with best QA - land and oc...		Median
MODIS aerosols L2 (Terra), ver. 006	AOD at 550nm (Deep Blue)		Multiple correlation

**Select: MODIS aerosols L2 (Aqua), ver. 006**

**Select: AOD 550nm-combined**

**Select: AOD 550nm-combined**

**Select: Mean**

**Last, click add**

[Add](#)



# X and Y Axis Information Will Appear in the Selected Measurements Section

**MAPSS: Multi-sensor Aerosol Products Sampling System**

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

**Data Selection** Results **NEW** [Try out the MAPSS Statistical Explorer](#)

**Plot Data** Reset Clear Send Us Feedback! Help

**Select Station**  
Bandung Browse

**Select Plot**  
Satellite Colocated with AERONET  
☐ Time Series  
☒ Scatter Plot

**Select Measurements**  
Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic ☐ Advanced

Product	Parameter	Layer	Measurement
MODIS 3km aerosols L2 (Aqua), ver. 006	AOD 550nm - combined	AOD 550nm - combined	Azimuth of fitted plane
MODIS 3km aerosols L2 (Terra), ver. 006	AOD at 3 bands (Deep Blue)		Central value
MODIS aerosols L2 (Aqua), ver. 006	AOD at 550 nm with all QA - land and oce...		Mean
MODIS aerosols L2 (Aqua), ver. 051	AOD at 550 nm with best QA - land and oc...		Median
MODIS aerosols L2 (Terra), ver. 006	AOD at 550nm (Deep Blue)		Multiple correlation

[More about MODIS aerosols L2 \(Aqua\), ver. 006 ...](#) No additional information No additional information [More about Mean ...](#) Add

**Selected Measurements**

X-Axis	Y-Axis
AERONET aerosols L2, ver. 2 : AOD - interpolated : AOD at 550nm (interpolated) : Mean <a href="#">No. of pixels with value</a> <input checked="" type="radio"/> All <input type="radio"/> >= 2	MODIS aerosols L2 (Aqua), ver. 006 : AOD 550nm - combined : AOD 550nm - combined : Mean <a href="#">No. of pixels with value</a> <input checked="" type="radio"/> All <input type="radio"/> >= 5

Delete Delete

These are the two parameters that will be compared in the analysis

# Step 4: Select a Date Range

**Select Station**  
Bandung

**Select Plot**  
Satellite Colocated with AERONET  
☐ Time Series  
☒ Scatter Plot

**Select Measurements**  
Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.  
☒ Basic ☐ Advanced

Product	Parameter	Layer
MODIS 3km aerosols L2 (Aqua), ver. 006	AOD 550nm - combined	AOD 550nm - combined
MODIS 3km aerosols L2 (Terra), ver. 006	AOD at 3 bands (Deep Blue)	
MODIS aerosols L2 (Aqua), ver. 006	AOD at 550 nm with all QA - land and oce...	
MODIS aerosols L2 (Aqua), ver. 051	AOD at 550 nm with best QA - land and oc...	
MODIS aerosols L2 (Terra), ver. 006	AOD at 550nm (Deep Blue)	

[More about MODIS aerosols L2 \(Aqua\), ver. 006 ...](#)

**Selected Measurements**

X-Axis	Y-Axis
AERONET aerosols L2, ver. 2 : AOD - interpolated : AOD at 550nm (interpolated) : Mean <a href="#">No. of pixels with value</a> <input checked="" type="radio"/> All <input type="radio"/> >= 2 <input type="button" value="Delete"/>	MODIS aerosols L2 (Aqua), ver. 006 : AOD 550nm - combined : AOD 550nm - combined : Mean <a href="#">No. of pixels with value</a> <input checked="" type="radio"/> All <input type="radio"/> >= 5 <input type="button" value="Delete"/>

**Select Date Range**  
☒ Date Picker ☐ Seasonal Search  
Format: YYYY-MM-DD. Valid Range: 2002-07-07 to 2015-07-23  
Date Range (UTC):  to

Make sure both datasets are available for the selected range. You can verify this by clicking here





# Step 5: Click Plot Data and Wait for Results

**Select Station**

**Select Plot**  
Satellite Colocated with AERONET  
☐ Time Series  
☒ Scatter Plot

**Select Measurements**  
Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.  
☒ Basic ☐ Advanced

<b>Product</b> MODIS 3km aerosols L2 (Aqua), ver. 006 MODIS 3km aerosols L2 (Terra), ver. 006 <b>MODIS aerosols L2 (Aqua), ver. 006</b> MODIS aerosols L2 (Aqua), ver. 051 MODIS aerosols L2 (Terra), ver. 006 <a href="#">More about MODIS aerosols L2 (Aqua), ver. 006 ...</a>	<b>Parameter</b> <b>AOD 550nm - combined</b> AOD at 3 bands (Deep Blue) AOD at 550 nm with all QA - land and oce... AOD at 550 nm with best QA - land and oc... AOD at 550nm (Deep Blue)	<b>Layer</b> <b>AOD 550nm - combined</b>	<b>Measurement</b> Azimuth of fitted plane Central value <b>Mean</b> Median Multiple correlation <a href="#">More about Mean ...</a> <input type="button" value="Add"/>
No additional information		No additional information	

**Selected Measurements**  
**X-Axis**  
AERONET aerosols L2, ver. 2 : AOD - interpolated : AOD at 550nm (interpolated) : Mean  
[No. of pixels with value](#) ☒ All ☐ >= 2   
**Y-Axis**  
MODIS aerosols L2 (Aqua), ver. 006 : AOD 550nm - combined : AOD 550nm - combined : Mean  
[No. of pixels with value](#) ☒ All ☐ >= 5

**Select Date Range**  
☒ Date Picker ☐ Seasonal Search   
Format: YYYY-MM-DD. Valid Range: 2002-07-07 to 2015-07-23  
Date Range (UTC):  to



# Exercise Questions:

- Which two parameters were compared?
- What is the location of the AERONET station you selected?
- Describe (correlation, slope, quality, etc.) the comparison of satellite AOD to AERONET in your region.

